

LISTING OF THE CLAIMS

This listing of claims will replace all prior versions, and listings, of claims in the application:

Claim 1 (currently amended): An expression method for non-naturally-occurring amino acid-containing proteins comprising: expressing in isolated animal cells:

- (A) a mutant tyrosyl-tRNA synthetase (V37C195) that has undergone alterations from tyrosine to valine at position 37 and from glutamine to cysteine at position 195 of tyrosyl tRNA synthetase ~~originating from *E. coli*~~ (SEQ ID NO:29) with an enhanced specificity for a non-naturally-occurring tyrosine derivative selected from the group consisting of 3-iodotyrosine and 3-bromotyrosine, as compared with the specificity for tyrosine;
- (B) *Bacillus stearothermophilus* suppressor tRNA capable of binding with the tyrosine derivative in the presence of the mutant tyrosyl tRNA synthetase; and,
- (C) a desired protein gene that has undergone a nonsense mutation at a desired site; wherein, the tyrosine derivative is incorporated in response to the created nonsense codon.

Claims 2-5 (canceled).

Claim 6 (previously presented): The expression method according to claim 1 wherein the isolated animal cells are mammalian cells.

Claim 7 (previously presented): A non-naturally-occurring amino acid-containing protein production method comprising: recovering and purifying a protein expressed in an isolated animal cell according to the method according to claim 1.

Claim 8 (withdrawn): Animal cells containing:

- (A) an expression vector that expresses in animal cells a mutant tyrosyl-tRNA synthetase that is a derivative of tyrosyl tRNA synthetase from *E. coli* with an enhanced specificity for a non-naturally-occurring tyrosine derivative as compared with the specificity for tyrosine;

- (B) an expression vector that expresses in the animal cells a suppressor tRNA originating in a *Bacillus* species, *Mycoplasma* species or *Staphylococcus* species of eubacteria capable of binding with the tyrosine derivative in the presence of the mutant tyrosyl tRNA synthetase; and,
- (C) an expression vector that expresses in the animal cells a desired protein gene that has undergone a nonsense mutation at a desired site; wherein, the tyrosine derivative is incorporated at the site of the nonsense mutation of the protein.

Claim 9 (withdrawn): The animal cells according to claim 8 wherein the tyrosine derivative is a position 3-substituted tyrosine or position 4-substituted tyrosine.

Claim 10 (withdrawn): The animal cells according to claim 8 wherein the suppressor tRNA of (B) is suppressor tyrosine tRNA originating in *Bacillus stearothermophilus*.

Claim 11 (withdrawn): The animal cells according to claim 8 wherein the mutant tyrosyl tRNA synthetase of (A) is a mutant tyrosyl tRNA synthetase that has undergone an alteration at the location corresponding to tyrosine at position 37 and glutamine at position 195 of tyrosyl tRNA synthetase.

Claim 12 (withdrawn): The animal cells according to claim 11 wherein the mutant tyrosyl tRNA synthetase of (A) is a mutant TyrRS in which the location corresponding to tyrosine (Y) at position 37 of tyrosyl tRNA synthetase is substituted with valine (V), leucine (L), isoleucine (I) or alanine (A), and the location corresponding to glutamine (Q) at position 195 of tyrosyl tRNA synthetase is substituted with alanine (A), cysteine (C), serine (S) or asparagine (N).

Claim 13 (withdrawn): The animal cells according to claim 8 that are mammalian cells.

Claim 14 (withdrawn): DNA having a sequence selected from the group consisting of SEQ. ID NO. 1, SEQ. ID NO. 30, SEQ. ID NO. 31 and SEQ. ID NO. 32.

Claim 15 (withdrawn): An expression vector capable of being expressed from a control sequence recognized in animal cells comprising a sequence selected from the group consisting of SEQ. ID NO. 1, SEQ. ID NO. 30, SEQ. ID NO. 31 and SEQ. ID NO. 32.

Claim 16 (withdrawn): The expression vector according to claim 15 that carries nine copies of DNAs having the sequence of SEQ. ID NO. 1 in the same direction.